OMNI™

Combined Bar Code

and

Magnetic Stripe Reader

RS-232 Interface

and USB/RS-232

User's Manual

IDTECH®

Value through Innovation

Agency Approved

Specifications for subpart B of part 15 of FCC rule for a Class A computing device.

Limited Warranty

ID TECH warrants this product to be in good working order for a period of one year from the date of purchase. If this product is not in good working order as warranted above, or should this product fail to be in good working order at any time during the warranty period, repair or replacement shall be provided by ID TECH.

This warranty does not cover incidental or consequential damages incurred by consumer misuse, or modification of said product. For limited warranty service during the warranty period, please contact ID TECH to obtain an RMA number and instructions for returning the product.

©2005 International Technologies & Systems Corporation. The information contained herein is provided to the user as a convenience. While every effort has been made to ensure accuracy, ID TECH is not responsible for damages that might occur because of errors or omissions, including any loss of profit or other commercial damage. The specifications described herein were current at the time of publication, but are subject to change at any time without prior notice.

ID TECH is a registered trademark of International Technologies & Systems Corporation. Omni and Value through Innovation are trademarks of International Technologies & Systems Corporation.

Table of Contents

Section 1. Introduction
- Description 1

Section 2. Installation
- Host Connections 2

Section 3. Configuration 3
- Default Settings 5
- Serial Interface Parameters 5
- General Selections 7
- Bar Code Message Formatting Selections 10
- Magnetic Stripe Formatting Selections 12
- Bar Code Selections 14
- Magnetic Stripe Selections 27
- Reviewing Configuration Selections 28

Section 4. Data Editing 30
- Data Fields 31
- Data Editing Formulas 32
- The Formula Sequence 33
- Data Editing Functions 34
- Data Editing General Commands 35
- Data Flow 40
- Examples 41

Section 5. Operation
- Operating Procedure 44

Section 6. Troubleshooting
- General Procedures 45
- Serial Interface Problems 46
- Scanning Configuration 47

Appendix A. Default Settings
Default Settings List 48

Appendix B. Magnetic Stripe Data Output Format
Magnetic Stripe Default Data Format 51

Appendix C. Magnetic Stripe Standard Data Formats
ISO Credit Card 52
California Driver's License 53
AAMVA Driver's License 55

Appendix D. Full ASCII Table
ASCII Characters 56

Appendix E. Connector Pin Outs
RS-232 Ports 58

Appendix F. USB/RS-232 Interface
Installing the Drivers 59
Troubleshooting 62

Section 1
INTRODUCTION

Description

The Omni™ slot reader can scan and decode most popular bar codes, and/or read 1, 2, or 3 tracks of magnetic stripe information, depending on the model. In addition, it has full data editing capabilities.

The Omni can be connected to a single-ended serial device, such as a cash register, PC, or terminal, through an RS-232 serial port or a USB port, depending on the reader interface.

This unit is fully programmable via keystroke commands. The data can be formatted with preamble/postamble and terminator characters to match the format expected by the host. The programing codes are the same for both RS-232 and USB/RS-232 units. Please see Appendix E for details.

Power is obtained from a separate power supply module when the unit is configured as an RS-232 device. Power, when the reader is connected via a USB port, is obtained from the host.

Section 2
INSTALLATION

Host Connections

The Omni reader is connected to the host's RS-232 communications port. The cable has a DB-9 connector at one end, and is connected to the reader at the other end. (An adapter can be used to connect to a DB-25 RS-232 port.)

The USB/RS-232 version of the Omni is connected to one of the host's USB ports. It is necessary to configure the unit as an RS-232 device by installing the ID TECH USB/RS-232 drivers. Please see Appendix F for details.

Data is transmitted to the host in an ASCII data format. The reader's output can be formatted with terminating characters and special preamble and/or postamble character strings to match the data format expected by the terminal.

The terminal must be configured to accept the data and to perform the appropriate processing. Care must be taken to ensure that the RS-232 parameters (baud rate, data bits, Start/Stop characters, parity, and handshaking method) match those expected by the terminal. Just transmitting the data to the serial port does not necessarily mean it will appear on the screen as if it were entered manually.

If the host is programmable (such as a PC running in terminal mode), a communication program, such as Procomm or Hyper Terminal, can be used to display the data.

There is insufficient power available on a standard RS-232 serial port to power the Omni, so an external wall-mounted power module must be used. Connect the power cable from this unit to the power receptacle located on the DB-9 connector. Care must be taken to ensure the power module operates within +5VDC $^{+}$10%.

When operating the USB/RS-232 version of the Omni, power is obtained from the USB port. No external power module is necessary.

Section 3
CONFIGURATION

The Omni reader must be appropriately configured to your application. Configuration settings enable the reader to work with the host system. These settings are programmed into the reader through the keyboard. Once programmed, these configuration settings are stored in the reader's non-volatile memory (so they are not affected by the cycling of power).

Bar Code Input

The reader may need to be configured to accept the desired bar code data and format it for transmission to the host. This includes enabling it for the correct bar code symblogy, setting any check digit, start/stop codes, preamble/postamble, and min/max symbol length. Default settings enable all least restrictive settings.

Magnetic Stripe Input

The reader may need to be configured to accept the desired magnetic stripe data and format it for transmission to the host. The encoded data can be ANSI, ISO, AAMVA, and California Drivers License magnetic stripe formats. The reader can be configured to read any track, 1 only, 2 only, 3 only, 1 & 2, 2 & 3, or 1,2 &3. In addition, track start/stop sentinels can be sent or suppressed and track 2 account number information only can be selected along with user selectable track separator characters. Default settings enable reading on all available tracks (depending on whether the reader is equipped to read one, two, or three tracks).

Configuration Setup Procedure

1. On an AT-compatible computer, enter any communication program. (Hyper Terminal is recommend in the Windows environment.)
2. Turn on the CAPS LOCK feature on the keyboard, as the configuration code is case sensitive.
3. Identify the settings that you wish to change. All options are covered in the various setup groups explained in this manual. (The reader's related setting features are grouped together.)
4. Enter the GROUP SETUP MODE by typing **/E/D/FX** (where X is the group name identified in Step 3).

5. Press the **<Enter>** key. The reader will beep twice to indicate the reader is now in the Setup Mode for group X.
6. Type the **two-character selection code** for the feature that you wish to change.
7. Press the **<Enter>** key. The reader will beep twice to indicate the code is accepted by the reader as a valid code for Setup Group X.
8. Type the **one-character code** for the change you wish to make.
9. Press the **<Enter>** key. The reader will beep twice to indicate the code is accepted by the reader as a valid code for that particular feature.
10. Repeat Steps 6 to 9 for any other features that you wish to change in the same Setup Group.
11. Save the changes and exit Setup Mode by typing **XZ**. (Of course, X must be the same group name entered in Step 4.)
12. Press the **<Enter>** key. The reader will sound four beeps to indicate the new settings have been saved in the reader and the reader is back to the normal reading mode.

EXAMPLE:
To set the reader's beep volume to LOW, enter following setup code in Notepad:
/E/D/FB<Enter>B1<Enter>1<Enter>BZ<Enter>

The setup routine is always the same, regardless of group:
1. Enter group setup mode.
2. Enter the feature selection code.
3. Change the setting for that feature.
4. Save the change and exit.

The reader's response is always the same, regardless of group:
· Two slow beeps indicate the code has been accepted by the reader.
· Four slow beeps indicate the reader has saved the settings and has exited the setup mode successfully.
· Four quick beeps indicate the code entered is invalid and has been rejected by the reader.

Before proceeding to enter the next code, make sure the reader gives the correct number of beeps when <ENTER> is depressed.

Default Settings

The Omni reader is shipped from the factory with the default settings already programmed. In the following sections, the default settings are shown in **boldface**. For a list of all default settings, please see Appendix A.

By default, the reader has been programmed with the least restricted settings, thus making the Omni reader able to read most bar code labels and standard format magnetic stripe cards out of box.

The reader's output data format can be reconfigured to meet the expectations of the host application.

To reset the reader to the factory default, follow these steps:
1. On an AT-compatible computer, enter any communication program. (Hyper Terminal is recommend in the Windows environment.)
2. Turn on the CAPS LOCK feature on the keyboard, as the configuration code is case sensitive.
3. Enter the GROUP SETUP MODE by typing **/E/D/FA**.
4. Press the **<Enter>** key. The reader will beep twice.
5. Type **AW**.
6. Press the **<Enter>** key. The reader will beep twice.
7. Type **AZ**.
8. Press the **<Enter>** key. The reader will sound four beeps.

Note: To check the firmware version, type AY <ENTER> before AZ <ENTER>.

Serial Interface Parameters (Group E)

This group of settings specifies the parameters used for serial communications. The settings will be active for the host/terminal serial interface.

1. Enter SERIAL INTERFACE SETUP MODE by typing **/E/D/FE**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Type the two-character code for the feature you wish to change.
4. Press **<ENTER>**. *The reader should beep twice.*

5. Type the one-character code for the change you wish to make.
6. Press **<ENTER>**. *The reader should beep twice.*
7. Save the setting and exit the Group Setup Mode by typing **EZ**.
8. Press **<ENTER>**. *The reader should beep four times.*

Baud Rate

The baud rate is the speed at which data is transmitted and received.

SELECTION CODE: E1	
300 bps	A
1200 bps	C
2400 bps	D
4800 bps	E
9600 bps	**F**
19200 bps	G

Data Bits

Set the number of data bits used to define a character.

SELECTION CODE: E2	
7 bits	A
8 bits	**B**

Parity

Serial communication can define a parity check bit to be added to each character. This check bit can be true for an odd number of "1" bits or an even number of "1" bits in the data character. The user may also choose to define the parity bit as a MARK (true) or a SPACE (false). Selecting NONE results in no parity bit.

SELECTION CODE: E3	
Odd	A
Even	B
Mark	C
Space	D
None	**E**

Note: The reader must use a total of 10 or 11 bits to define a character frame. If you select "7" data bits with the "None" parity option, the reader will format the character frame as 8 data bits and no parity.

Handshaking

Some type of flow control or "handshaking" must be used between two devices to prevent data from being transmitted before the receiving device is ready to accept it. Handshake signals interrupt the flow of data until the receiving device is ready.

SELECTION CODE: E4	
X-On/X-Off	**A**
RTS/CTS	B

Stop Bit

The stop bit function defines the number of bits used to end the data frame. Older equipment sometimes requires extra time after receiving a character in order to process it, and therefore requires two stop bits.

SELECTION CODE: E5	
1 bit	**A**
2 bits	B

EXAMPLE:
To set the reader to 9600 bps, 7 bits, Even, enter:
/E/D/FE<ENTER>E2<ENTER>A<ENTER>E3<ENTER>B<ENTER>EZ<ENTER>

General Selections (Group B)

The basic operating parameters of the Omni reader can be programmed with this group of selections.

1. Enter GROUP SETUP MODE by typing **/E/D/FB** .
2. Press **<ENTER>**. *The reader should beep twice.*
3. Type the two-character selection code for the feature you wish to change.
4. Press **<ENTER>**. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press **<ENTER>**. *The reader should beep twice.*
7. Save the setting and exit the Group Setup Mode by typing **BZ**.
8. Press **<ENTER>**. *The reader should beep four times.*

Note: To review the group's current setting(s), type BY<ENTER> while in Group Setup Mode. To reset the current setting(s) to its group default, type BX<ENTER> while in the Group Setup Mode.

EXAMPLE:
To set the current settings to the group default, enter:
/E/D/FB<ENTER>BX<ENTER>BZ<ENTER>

Beep Volume

The beep volume can be adjusted to two different levels, or turned off entirely.

SELECTION CODE: B1	
Off	0
Low	1
High	**2**

Code/Track ID

Each bar code symbology or MSR track can be assigned a CODE ID character. This character is added to the beginning of the scanned data. The host can use this character to ensure that the data received came from the appropriate type of symbol.

SELECTION CODE: B5	
On	A
Off	**B**

Scan Verification

In order to insure accuracy of scanned data from poor-contrast bar code labels, a second confirmation swipe can be required before the reader will accept the data. When this option is enabled the reader requires the card to be swiped a second time and both swipes are compared. If they match, the data is considered good.

SELECTION CODE: B6	
On	A
Off	**B**

Note: This function applies to bar codes only.

Code ID Definition <Group I>

If the Code ID option is enabled in General Setup, the user can select the character used to identify each symbology.

1. Enter CODE ID DEFINITION SETTINGS MODE by typing **/E/D/FI**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Enter the characters in the left column to select the symbology.
4. Press **<ENTER>**. *The reader should beep twice.*
5. Enter one character for the new ID.

a	**UPC-A**	**Default = a**
b	**UPC-E**	**Default = b**
c	**EAN-8**	**Default = c**
d	**EAN-13**	**Default = d**
e	**Code 39**	**Default = e**
f	**Interleaved 2 of 5**	**Default = f**
g	**Industrial 2 of 5**	**Default = g**
h	**Code 128**	**Default = h**
i	**MSI/Plessey**	**Default = i**
j	**Codabar**	**Default = j**
k	**MSR Track 1**	**Default = k**
l	**MSR Track 2**	**Default = l**
m	**MSR Track 3**	**Default = m**
n	**Telepen**	**Default = n**

6. Press <ENTER>. *The reader should beep twice.*
7. Save the change and exit the group setup mode by entering IZ<ENTER>. *The reader should beep four times.*

Note: To review the group's current setting(s), type IY<ENTER> while in the Group Setup Mode. To reset the current setting(s) to its group default, type IX<ENTER> while in the Group Setup Mode.

EXAMPLE:
To change Code ID for Code 128 from h to w, enter:
/E/D/FI<ENTER>h<ENTER>w<ENTER>IZ<ENTER>

Bar Code Message Formatting Selections ‹Group C ›

Scanned bar code data can be formatted with the addition of preambles, postambles, and terminator characters. The settings below will augment bar code data scanned by the Omni. A fully-formatted message block reflects the following model:

{Preamble}{Code ID}{Data}{Terminator}{Postamble}

1. Enter BAR CODE MESSAGE FORMATTING SETUP MODE by typing **/E/D/FC**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Type the two-character selection code for the feature you wish to change.
4. Press **<ENTER>**. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press **<ENTER>**. *The reader should beep twice.*
7. Save the change and exit the Bar Code Setup Mode by typing **CZ**.
8. Press **<ENTER>**. *The reader should beep four times.*

Note: To review the group's current setting(s), type CY<ENTER> while in the setup mode. To reset the current setting(s) to its group default, type CX<ENTER> while in Bar Code Setup Mode.

Bar Code Terminator Character

Enter and Line Feed, Enter, Line Feed, or None: For some applications, it may be convenient to end a string of bar code scan data with a terminator character. For example, with keyboard entry, it is common to have the operator signify the end of the data input with the "Enter" keystroke. The terminator character serves this function.

SELECTION CODE: C1	
RETURN and Line Feed	A
RETURN	**B**
Line Feed	C
None	D

EXAMPLE:
To set the bar code terminator character to Line Feed, enter:
/E/D/FC<ENTER>C1<ENTER>C<ENTER>CZ<ENTER>

Bar Code Preamble

0 to 16 ASCII characters: The bar code preamble is a string of characters that can be added to the beginning of scanned bar code data. These can be special characters for identifying a specific scanning station, to format a message header expected by the receiving host. They can be any characters from the full ASCII table. (Please see Appendix D.)

SELECTION CODE: C2
One Character at a time

Bar Code Postamble

0 to 16 ASCII characters: The bar code postamble serves the same purpose as the preamble, except it is added to the end of the scanned data after any terminator characters.

SELECTION CODE: C3
One Character at a time

EXAMPLE:
To set a four-character bar code preamble of ABCD, enter:
/E/D/FC<ENTER>C2<ENTER>A<ENTER>B<ENTER>C<ENTER>
D<ENTER>CZ<ENTER>

Note: For CR, use CTRL-N (ASCII code 14h).

Magnetic Stripe Formatting Selections ‹Group D›

Magnetic stripe output can also be formatted with the addition of preambles, postambles, and terminator characters. The settings below will augment magnetic stripe data read by the Omni. A fully-formatted message block reflects the following model:

{Preamble}{T1 ID}{T1 Data}{Track Separator}{T2 ID}{T2 Data}{Track Separator}{T3 ID}{T3 Data}{Terminator}{Postamble}

1. Enter MAGNETIC STRIPE FORMATTING SETUP MODE by typing **/E/D/FD**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Type the two-character selection code for the feature you wish to change.
4. Press **<ENTER>**. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press **<ENTER>**. *The reader should beep twice.*
7. Save the change and exit the Magnetic Stripe Setup Mode by typing **DZ**.
8. Press **<ENTER>**. *The reader should beep four times.*

Note: To review the group's current setting(s), type DY<ENTER> while in the Magnetic Stripe Formatting Setup Mode. To reset the current setting(s) to its group default, type DX<ENTER> while in Formatting Mode.

Magnetic Stripe Terminator Character

Enter and LF, Enter, Line Feed, or None: For some applications, it may be convenient to end a string of magnetic stripe data with a terminator character. For example, with keyboard entry, it is common to have the operator signify the end of the data input with the "Enter" keystroke. The terminator character serves this function.

SELECTION CODE: D1	
RETURN and Line Feed	A
RETURN	**B**
Line Feed	C
None	D

EXAMPLE:
To set the magnetic stripe terminator character to Line Feed, enter:
/E/D/FD<ENTER>D1<ENTER>C<ENTER>DZ<ENTER>

Magnetic Stripe Preamble

0 to 16 ASCII characters: The magnetic stripe preamble is a string of characters that can be added to the beginning of magnetic stripe data. These can be special characters for identifying a specific reading station, to format a message header expected by the receiving host. They can be any characters from the full ASCII table. (Please see Appendix D.)

SELECTION CODE: D2
One Character at a time

Magnetic Stripe Postamble

0 to 16 ASCII characters: The magnetic stripe postamble serves the same purpose as the preamble, except it is added to the end of the read data after any terminator characters.

SELECTION CODE: D3
One Character at a time

EXAMPLE:
To set a four-character magnetic stripe preamble of ABCD, enter:
/E/D/FD<ENTER>D2<ENTER>A<ENTER>B<ENTER>C<ENTER>
D<ENTER>DZ<ENTER>

Note: For CR, use CTRL-N (ASCII code 14h).

Bar Code Selections

Bar code selections for the Omni are separated into two groups: Industrial and Retail. Industrial bar codes may contain a variable number of characters. Retail bar codes always contain a specific number of characters.

Industrial Bar Codes (Group F)

1. Enter INDUSTRIAL BAR CODE SETUP MODE by typing **/E/D/FF**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Type the two-character selection code for the bar code symbology you wish to change.
4. Press **<ENTER>**. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press **<ENTER>**. *The reader should beep twice.*
7. Save the change and exit the Industrial Bar Code Setup Mode by typing **FZ**.
8. Press **<ENTER>**. *The reader should beep four times.*

Note: To review the group's current setting(s), type FY<ENTER> while in the Industrial Bar Code Setup Mode. To reset the current setting(s) to its group default, type FX<ENTER> while in Industrial Bar Code Setup Mode.

Minimum and Maximum Length Options

You can set minimum and maximum length standards for a particular industrial bar code symbology. (You cannot set a minimum or maximum length for a retail bar code.)

Minimum length sets the minimum number of data characters that will be accepted for this symbology. If the minimum length is set higher than the maximum length, all readings will be rejected.

Maximum length sets the maximum number of data characters that will be accepted for this symbology. If the maximum length is set lower than the minimum length, all readings will be rejected.

To set the minimum and maximum length for a particular symbology:
1. Enter Setup Mode by typing **/E/D/FF**.
2. Press **<ENTER>**. *The reader should beep twice.*
3. Enter the selection code for the particular symbology selected (such as **F4<ENTER>** for Code 128). *The reader should beep twice.*
4. Enter **FU<ENTER>** for minimum or **FV<ENTER>** for maximum. *The reader should beep twice.*

5. Enter one digit **<ENTER>** one digit **<ENTER>** from the keyboard. (The range is 01 to 60). *The reader should beep twice after each* ***<ENTER>****.*
6. Save and exit by typing **FZ<ENTER>**. *The reader should beep four times.*

EXAMPLE:
To set the maximum length of a Code 39 bar code to 12, enter:
/E/D/FF<ENTER>F1<ENTER>FV<ENTER>1<ENTER>2<ENTER>
FZ<ENTER>

Code 39 Settings:

Enable/Disable Code 39

If enabled, Code 39 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F1	
Code 39 Enable	**A**
Code 39 Disable	B

Full ASCII

Standard Code 39 symbology supports only 43 characters. This can be expanded by using character pairs to identify the full ASCII 128 character set. When this option is ON, the reader will search for these character pairs and transmit only the Full ASCII single character equivalent to the host. If Full ASCII is enabled and used to read a standard Code 39 symbol, any combination of the defined character pairs will be reported to the host as the single character equivalent. When this option is OFF and a Full ASCII Code 39 symbol is scanned, the reader will report each of the characters in the Full ASCII pair as individual characters. The reader has no way of telling if the symbol is encoded in standard Code 39 or Full ASCII Code 39.

SELECTION CODE: F1	
Full ASCII On	**C**
Full ASCII Off	D

Check Digit

When Check Digit is selected, the reader takes the last character in the decoded data stream as a check digit. It then calculates the correct check digit for the remaining data and compares it to the last data character. If it is the same, the data is accepted. If not, the data is rejected. With the Calculate and Send Check Digit option, the reader will send the check digit as part of the data stream. If the Calculate but Do Not Send Check Digit option is selected, the reader will strip it from the data stream before transmission. If the Check Digit is not calculated, the reader will assume the last data character read from the symbol is part of the data stream and will not make a comparison test.

SELECTION CODE: F1	
Do Not Calculate Check Digit but Send Whole Data Stream	**E**
Calculate and Send Check Digit	F
Calculate but Do Not Send Check Digit	G

Send Start/Stop Characters

A unique character is used as the first and last character in a Code 39 symbol. It is printed as an asterisk (*). Some applications require that these characters be transmitted with the data while others specify that they must not be sent.

SELECTION CODE: F1	
Send Start/Stop	H
Do Not Send Start/Stop	**I**

EXAMPLE:
To disable the Full ASCII Code 39, enter:
/E/D/FF<ENTER>F1<ENTER>D<ENTER>FZ<ENTER>

Interleaved 2 of 5 Settings:

Enable/Disable Interleaved 2 of 5

If enabled, Interleaved 2 of 5 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F2	
Interleaved 2 of 5 Enable	**A**
Interleaved 2 of 5 Disable	B

Fixed Length

Interleaved 2 of 5 symbols are commonly printed in a fixed format containing a fixed number of characters. If this option is ON, the first Interleaved 2 of 5 symbol scanned after power up will set the length of any other symbols scanned afterwards. If the succeeding scans do not match the length of the first scan, the scan is rejected by the reader. Power must be reset before an Interleaved 2 of 5 symbol of a different length will be accepted.

SELECTION CODE: F2	
Turn On Fixed Length	C
Turn Off Fixed Length	**D**

Check Digit

When Check Digit is selected, the reader takes the last character in the decoded data stream as a check digit. It then calculates the correct check digit for the remaining data and compares it to the last data character. If it is the same, the data is accepted. If not, the data is rejected. With the Calculate and Send Check Digit option, the reader will send the check digit as part of the data stream. If the Calculate but Do Not Send Check Digit option is selected, the reader will strip it from the data stream before transmission. If the Check Digit is not calculated, the reader will assume the last data character read from the symbol is part of the data stream and will not make a comparison test.

SELECTION CODE: F2	
Do Not Calculate Check Digit but Send Whole Data Stream	**E**
Calculate and Send Check Digit	F
Calculate but Do Not Send Check Digit	G

FEBRABAN Conversion:

If enabled, the original 44-digit Interleaved 2 of 5 data will be converted to 48- digit FEBRABAN code. Otherwise, the original 44-digit data will not be changed.

SELECTION CODE: F3	
Convert to FEBRABAN Code	**H**
Do Not Convert to FEBRABAN Code	I

Industrial 2 of 5 Settings:

Enable/Disable Industrial 2 of 5

If enabled, Industrial 2 of 5 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F3	
Industrial 2 of 5 Enable	**A**
Industrial 2 of 5 Disable	B

Fixed Length

Industrial 2 of 5 symbols are commonly printed in a fixed format containing a fixed number of characters. If this option is ON, the first Interleaved 2 of 5 symbol scanned after power up will set the length of any other symbols scanned afterwards. If the succeeding scans do not match the length of the first scan, the scan is rejected by the reader. Power must be reset before an Interleaved 2 of 5 symbol of a different length will be accepted.

SELECTION CODE: F3	
Turn On Fixed Length	C
Turn Off Fixed Length	**D**

Check Digit

When Check Digit is selected, the reader takes the last character in the decoded data stream as a check digit. It then calculates the correct check digit for the remaining data and compares it to the last data character. If it is the same, the data is accepted. If not, the data is rejected. With the Calculate and Send Check Digit option, the reader will send the check digit as part of the data stream. If the Calculate but Do Not Send Check Digit option is selected, the reader will strip it from the data stream before transmission. If the Check Digit is not calculated, the reader will assume the last data character read from the symbol is part of the data stream and will not make a comparison test.

SELECTION CODE: F3	
Do Not Calculate Check Digit but Send Whole Data Stream	**E**
Calculate and Send Check Digit	F
Calculate but Do Not Send Check Digit	G

Code 128 Setting:

Enable/Disable Code 128

If enabled, Code 128 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F4	
Code 128 Enable	**A**
Code 128 Disable	B

Note: The Check Digit is manditory for Code 128.

Codabar Settings:

Enable/Disable Codabar

If enabled, Codabar symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F5	
Codabar Enable	**A**
Codabar Disable	B

Send Start/Stop Characters

Codabar uses the A, B, C, and D characters as Start and Stop characters, giving 16 unique Start/Stop character combinations. Some applications require that these characters be transmitted with the data while others specify that they must not be sent.

SELECTION CODE: F5	
Send Start/Stop	C
Do Not Send Start/Stop	**D**

Check Digit

When Check Digit is selected, the reader takes the last character in the decoded data stream as a check digit. It then calculates the correct check digit for the remaining data and compares it to the last data character. If it is the same, the data is accepted. If not, the data is rejected. With the Calculate and Send Check Digit option, the reader will send the check digit as part of the data stream. If the Calculate but Do Not Send Check Digit option is selected, the reader will strip it from the data stream before transmission. If the Check Digit is not calculated, the reader will assume the last data character read from the symbol is part of the data stream and will not make a comparison test.

SELECTION CODE: F5	
Do Not Calculate Check Digit but Send Whole Data Stream	**E**
Calculate and Send Check Digit	F
Calculate but Do Not Send Check Digit	G

MSI/Plessey Settings:

Enable/Disable MSI/Plessey

If enabled, MSI/Plessey symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F7	
MSI/Plessey Enable	**A**
MSI/Plessey Disable	B

Check Digit

The MSI/Plessey symbology requires a check digit, and can optionally have two check digits. The reader can either send the check digit(s) as part of the data, or strip it before transmission to the host.

SELECTION CODE: F7	
Send Check Digit	C
Do Not Send Check Digit	**D**

Select only one of the following check digit schemes:

SELECTION CODE: F7	
One Mod 10 Check Digit	E
Two Mod 10 Check Digits	F
Mod 10/Mod 11 Check Digits	**G**

Telepen Setting:

Enable/Disable Telepen

If enabled, Telepen symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: F8	
Telepen Enable	**A**
Telepen Disable	B

Numeric / ASCII Mode

If set to Numeric Mode, each original Telepen code will be translated into 2-digit numeric pair. Otherwise, ASCII or Numeric data will be sent out accor-ding to the AIM specification.

SELECTION CODE: F8	
Numeric Mode	**C**
ASCII Mode	D

Retail Bar Codes <Group G>

Retail bar codes are based on the Uniform Code Council product code encoding algorithms. These are commonly referred to as the UPC/EAN symbologies.

1. Enter RETAIL BAR CODE SETUP MODE by typing /E/D/FG.
2. Press <ENTER>. *The reader should beep twice.*
3. Type the two-character selection code for the bar code symbology you wish to modify.
4. Press <ENTER>. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press <ENTER>. *The reader should beep twice.*
7. Save the change and exit the Group Setup Mode by typing GZ <ENTER>. *The reader should beep four times.*

Note: To review the current setting(s), type GY<ENTER> while in Group Setup Mode. To reset the current setting(s) to default, type GX<ENTER> while in Group Setup Mode.

EXAMPLE:
To set the current settings to default, enter:
/E/D/FG<ENTER>GX<ENTER>GZ<ENTER>

UPC Settings:

Enable/Disable UPC-A

UPC-A is a fixed format symbology and there are no variations allowed. If enabled, UPC-A symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: G1	
UPC-A Enable	**A**
UPC-A Disable	B

Enable/Disable UPC-E

UPC-E is a special version of the UPC-A specification. It is a fixed format symbology and there are no variations allowed. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: G1	
UPC-E Enable	**C**
UPC-E Disable	D

Send Number System Digit

The first encoded digit in the UPC-A symbol is the number system digit. If enabled, the first digit of the transmitted data stream is the number system digit followed by the manufacturer's number. If disabled, then the first digit transmitted is part of the manufacturer's number.

SELECTION CODE: G1	
Send Number Digit	**E**
Do Not Send Number Digit	F

Send Check Digit

The check digit is mandatory in the UPC symbology. If enabled, the reader will send the decoded check digit as the last character in the data stream transmitted. If not, the check character will be suppressed before transmission.

SELECTION CODE: G1	
Send Check Digit	**G**
Do Not Send Check Digit	H

UPC-E Expansion

The UPC-E symbology uses a special algorithm to suppress zeros in the encoded data. The suppressed information can be restored by either the Omni reader or the host system. If enabled, the reader will restore the data to its original format. If the host system is set up to do the expansion, then this option should not be used.

SELECTION CODE: G1	
Expand UPC-E	I
Do Not Expand UPC-E	**J**

Read Two-Digit Addendum

If enabled, the reader will decode the two-digit secondary symbol when it is scanned with the primary symbol, and add the data to the end of the transmission. If not, any two-digit secondary symbol will be ignored.

SELECTION CODE: G1	
Read Two-Digit Addendum	K
Do Not Read Two-Digit Addendum	**L**

Read Five-Digit Addendum

This option operates in the same manner as the Read Two Digit Addendum option except it enables the reading of a five digit secondary symbol.

SELECTION CODE: G1	
Read Five-Digit Addendum	M
Do Not Read Five-Digit Addendum	**N**

Addendum Required

If a two or five-digit addendum is enabled, then enabling this option will require an addendum be present before a good read is registered. If not, then symbols with and without the addendum will be accepted.

SELECTION CODE: G1	
Addendum Required	**O**
Addendum Not Required	P

Add Separator Space

This option is used with the Two and Five-Digit Addendum options. If enabled, an ASCII space character is inserted between the data decoded from the primary UPC symbol and the addendum symbol.

SELECTION CODE: G1	
Add Space Separator	**Q**
Not Add Space Separator	R

Convert UPC-A to EAN-13

SELECTION CODE: G1	
Do Not Convert to EAN-13	**S**
Convert to EAN-13	T

EAN Settings:

Enable/Disable EAN-13

EAN-13 is a fixed format symbology and there are no variations allowed. If enabled, EAN-13 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: G2	
EAN-13 Enable	**A**
EAN-13 Disable	B

Enable/Disable EAN-8

If enabled, EAN-8 symbology will be read, subject to the reading restrictions specified by this set of options. If disabled, the data from the symbology will be disregarded.

SELECTION CODE: G2	
EAN-8 Enable	**C**
EAN-8 Disable	D

Send Induced Country Code Character

The EAN symbology adds an extra digit to the beginning of the data to create a two-digit country code. If enabled, the added induced character is the first character transmitted. If disabled, the induced character is not transmitted.

SELECTION CODE: G2	
Induced Character Enable	**E**
Induced Character Disable	F

Send Check Digit

The check digit is mandatory in the EAN symbology. If enabled, the reader will send the decoded check digit as the last character in the data stream transmitted. If not, the check character will be suppressed before transmission.

SELECTION CODE: G2	
Send Check Digit	**G**
Do Not Send Check Digit	H

Read Two-Digit Addendum

If enabled, the reader will decode the two-digit secondary symbol when it is scanned with the primary symbol, and add the data to the end of the transmission. If not, any two-digit secondary symbol will be ignored.

SELECTION CODE: G2	
Read Two-Digit Addendum	I
Do Not Read Two-Digit Addendum	**J**

Read Five-Digit Addendum

This option operates in the same manner as the Read Two Digit Addendum option except it enables the reading of a five digit secondary symbol.

SELECTION CODE: G2	
Read Five-Digit Addendum	K
Do Not Read Five-Digit Addendum	**L**

Addendum Required

If a two or five-digit addendum is enabled, then enabling this option will require an addendum be present before a good read is registered. If not, then symbols with and without the addendum will be accepted.

SELECTION CODE: G2	
Addendum Required	**M**
Addendum Not Required	N

Add Separator Space

This option is used with the Two and Five-Digit Addendum options. If enabled, an ASCII space character is inserted between the data decoded from the primary UPC symbol and the addendum symbol.

SELECTION CODE: G2	
Add Space Separator	**O**
Not Add Space Separator	P

Magnetic Stripe Selections <Group H>

The Omni reader can accept and decode data read from a magnetic stripe. The parameters for reading the magnetic data can be programmed independently from any of the bar code selections.

1. Enter MAGNETIC STRIPE SELECTIONS SETUP MODE by typing **/E/D/FH** .
2. Press <ENTER>. *The reader should beep twice.*
3. Type the two-character selection code for the feature you wish to change.
4. Press <ENTER>. *The reader should beep twice.*
5. Type the one-character code for the change you wish to make.
6. Press <ENTER>. *The reader should beep twice.*
7. Save the change and exit the Group Setup Mode by typing HZ <ENTER>. *The reader should beep four times.*

Note: To review the current setting(s), type HY<ENTER> while in Magnetic Stripe Selections Setup Mode. To reset the current setting(s) to default, type HX<ENTER> while in Magnetic Stripe Selections Setup Mode.

Track Selection

There are three tracks on a magnetic stripe card that can contain encoded data. This option selects the tracks that will be decoded. Note that the magnetic stripe reader must have heads aligned for reading the specified tracks.

SELECTION CODE: H1	
Track 2 Only	A
Track 1 Only	B
Track 3 Only	C
Tracks 1 & 2	D
Tracks 2 & 3	E
Any Track	**F**
All Tracks	G

Send Start/Stop Sentinel

The tracks of a magnetically-encoded card contain special Start/Stop Sentinel characters. If this option is enabled, the Start/Stop Sentinel characters will be transmitted as part of the data stream. If this option is not selected, the Sentinel characters are suppressed before transmission.

SELETION CODE: H2	
Send Start/Stop Sentinels	**A**
Do Not Send Start/Stop Sentinels	B

Track Two Send Accout Number Only

Track Two of a magnetically encoded credit card includes the account number information as well as other information. If this option is selected, all other-data contained on the track is suppressed before transmission.

SELECTION CODE: H3	
Track 2 Send Account Number Only	A
Track 2 Not Limited to Account Number	**B**

Track Separator

One character from the Full ASCII Table: This option allows the user to select the character used to separate data decoded from each track when using multiple track magnetic stripe readers.

H4<ENTER><SELECTED CHARACTER><ENTER>

Note: For no track separator, enter N. Default is <ENTER>.

Reviewing Configuration Settings

The reader's current settings can be reviewed by following these steps:
1. Locate the group that contains the settings you want to review.
2. On an AT-compatible computer, enter any communication program. (Hyper Terminal is recommend in the Windows environment.)
3. Enter the setup mode for that group by typing **/E/D/FX** <Enter>. (X in this case is the single alpha character identified with the group located in Step 1.)
4. The reader will respond with two beeps after <ENTER> is depressed.
5. Review the settings for the group by typing **XY**<ENTER>. (X is the same single alpha character as typed in Step 3.)
6. After <ENTER> is depressed, the reader will display the current settings for the group onto the screen for user to review, followed by two beeps from the reader. *
7. Exit the setup mode after reviewing the settings by typing **XZ** <ENTER>. (X is the same single alpha character as typed in Step 3.)
8. The reader will respond with four beeps.

** Hyper Terminal must be configured correctly: Append Line Feed to Incoming Line End.*

EXAMPLE:
To review the reader's current settings for the Code 39 bar code, first find the settings for Code 39 listed in the Industrial Bar Codes setup group. (The single alpha character group name is F.) Then in Notepad type:
/E/D/FF<ENTER>FY<ENTER>
A sample response is shown below.
Remember to end the review by typing: FZ<ENTER> This will take the reader out of the setup mode and bring it back into its normal reading mode.

==========

Industrial Bar Code Setting

Code 39 Enabled; Full ASCII Off
Min Length = 01; Max Length = 60; No Check Digit; Stop-Start Send

I 2 0f 5 Enabled; Fixed Length Off
Min Length = 01; Max Length = 60; No Check Digit

FEBRABAN Enabled

S 2 of 5 Enabled; Fixed Length Off
Min Length = 01; Max Length = 60; No Check Digit

Code 128 Enabled
Min Length = 01; Max Length = 60

Codabar Enabled; StopStart Not Send
Min Length = 01; Max Length = 60; No Check Digit

MSI Enabled; Check Digit Not Send
Min Length = 01; Max Length = 60; Check Digit Double Modulo 10

Telepen Enabled, ASCII Mode
Min Length = 01; Max Length = 60

==========

Section 4
DATA EDITING

In addition to adding preambles, postambles, and terminator characters, the Omni can also rearrange, drop, or add to the data it reads from a bar code or magnetic stripe. This enables the data to be sent to the host in the exact format expected by the application software, thus eliminating the need for software modifications.

To accomplish this, the decoded data is divided into smaller blocks of data known as "fields." in the manner desired, or in accordance with established standards such as ISO, AAMVA, and CDL.* With these fields of data defined, the order in which they are sent to the host can be changed. They can also be added or eliminated as needed.

Specifically, the following functions can be performed:

Validate the Data: Data read from a bar code or magnetic stripe can be checked for length, matched to a preset value, or restricted to a certain type of input (i.e., Code 39, Code 128, etc.).

Parse the Data: The data can be divided into separate fields.

Rearrange the Data: The fields that make up one track of data can be transmitted to the host in any order desired, regardless of the order in which they occur on the magnetic stripe itself.

Insert Character Strings into the Data: Additional fields of characters can be created and inserted into the data at any place on any track.

Delete Character Strings from the Data a Record: Fields of characters can be deleted from the data before it is transmitted to the host.

Search for a Character String: Data can be searched for a specified string of characters. This string of characters can then be deleted, moved, or modified using other Data Editing commands.

Duplicate Fields: Fields of data within a track can be duplicated and transmitted to the host as many times as desired—and in any order desired.

Insert Time Delay: Time delays can be inserted between fields of data to give the host time to complete an operation.

** Please see Appendix C for standard magnetic stripe data formats.*

Data Fields

By separating decoded data into blocks known as “fields,” each block of data can be treated individually. Fields can also be added to the data, permitting user-required characters or function codes to be included.

The fields are identified by a one-character ID starting with the character “A” (up to and including “Z”) in the order they were created. These fields can then be sent to the host in the order you specified.

For example, if the credit card data on Track 2 of the magnetic stripe is:

```
;1234567890123456=9912xxxxxxx?
```

It is divided into seven fields (A, B, C, D, E, F, and G) as shown below:

```
   ;1234567890123456=9912xxxxxxx?
|A|          B              |C| D |   E     |F|
```

If your application software needs the data sent in the following format:

9912<ENTER>
1234567890123456<ENTER>

You can create that format by selecting only the fields you need, reversing the order in which they are sent to the host, and then creating a new field <ENTER> to insert after each field.

We do this by using the fields as defined above and adding a new field:

Field B = 1234567890123456
Field D = 9912
Field G = <ENTER>

and then sending {Field D}{Field H}{Field B}{Field G} to the host.

Data Editing Formulas

The set of instructions programmed into the reader to define data fields and than arrange them into a format is known as the data editing “formula.”

A maximum of four formulas can be resident in the reader’s memory at any one time. If more than one formula is stored in memory, the reader will apply the first formula to the decoded data. If the data format matches the format (credit card, driver’s license, etc.) of the first formula, then it will re-arrange, add, and drop the data fields as you have indicated and output the reformatted data to the host.

However, if the data does not match the criteria spelled out in the first formula, then the criteria of the second formula stored in memory will be applied. And so on. This process will continue for each of the successive formulas until a match is found. If no matches are found for any of the formulas programmed into the reader, then the unedited data record will be transmitted to the host by default (unless DO NOT SEND DATA has been selected).

The number of formulas the reader will store is limited by the amount of memory available. Caution should therefore be used when entering a number of long formulas, as all might not fit.

The Formula Sequence

A basic data editing formula for the Omni has the following structure. (The optional commands are enclosed in brackets):

CODE ID[LENGTH][MATCH]DIVIDE[ADD]SEND

In other words:
1. Identify the bar code symbologies and/or magnetic stripe tracks to which this formula will apply.
2. Specify data length parameters (if desired).
3. Specify the characters (if any) you would like to match.
4. Indicate how you want to divide the data record.
5. Add a character string (if desired).
6. Send the edited data record to the host computer.

Several code IDs can be specified following the CODE ID command, and several ADD commands can be programmed as long as they are grouped together and placed prior to the SEND command.

Note: For non-printable ASCII code, use the Alt-numeric key combination from the numeric keypad.

Using the Data Editing Functions

The data editing function is often applied to driver's licenses, where the magnetic stripe contains three tracks of information about the license holder, and the host application may need only certain details (such as name, address, and birth date) rather than all the data the stripe holds.

In the AAMVA format, for example, the unedited output for a driver's license might look like this:

TRACK 1: %CABREA^DOE$JANE$R$^310 S JEFFERSON ST^?
TRACK 2: ;636014028198457=051219639924?
TRACK 3: %!!92870 C F503121BLKBRN D69119980116?

Track 1 contains the license holder's name and address. Track 2 includes the expiration date and the holder's birthdate. Track 3 includes such details as height, weight, sex, hair, and eye color.

You can identify exactly what fields the various bits of data occupy by referring to the AAMVA format in Appendix C. Read the data from a sample license, print it out, and then mark the fields accordingly. Now decide what fields of data you need, and what fields of data you don't need. For instance, if you don't need eye and hair colors, you can discard this data once it is read and decoded. You don't need to send it to the host.

Once you know what data you'll need for your host application, decide what order you'll need it in. Should the name come first? Should the city come last? Is there other data or formatting you need? If so, you will have to add fields that contain that data.

Knowing what fields you need to add, drop, and re-arrange will enable you to make full use of the commands on the following pages.

Data Editing Commands

1. Enter DATA EDITING mode by typing **/E/D/FJ**
2. Press **<ENTER>**. The reader should beep twice.
3. Type the two-character selection code for the function you wish to enable or set.
4. Press **<ENTER>**. The reader should beep twice.
5. Type the command you wish to enter.
6. Press **<ENTER>**. The reader should beep twice.
7. Continue to add commands to the data editing formula as desired.
8. Save the formula and exit the data editing mode by typing **JZ <ENTER>**. The reader should beep four times.

Note: JZ should only being entered at the end of the entire data editing formula, not after each command. *See examples page 41.*

Data Editing On/Off

Use this command to turn the Data Editing function on or off.

SELECTION CODE: JA	
Data Editing Off	**0**
Data Editing On	1

EXAMPLE:
To turn the Data Editing function on, enter:
/E/D/FJ<ENTER>JA<ENTER>1<ENTER>...

Unmatched Input Send/Do Not Send

This command enables or disables the transmission of data that does not meet the restrictions of the data editing formula(s). When SEND ALL DATA is selected, data that does not match any of the formulas will be transmitted anyway, along with any preambles or postambles. When DO NOT SEND is selected, unmatched data will not be sent.

SELECTION CODE: JB	
If No Formula Matches Data, Do Not Send Data	0
If No Formula Matches Data, Send All Data	**1**

Select Code ID(s)

This command designates the bar code symbologies or magnetic stripe tracks that will be accepted as valid.

SELECTION CODE: JC	
UPC-A	a
UPC-E	b
EAN-8	c
EAN-13	d
Code 39	e
Interleaved 2 of 5	f
Industrial 2 of 5	g
Code 128	h
MSI/Plessey	i
Codabar	j
MSR Track 1	k
MSR Track 2	l
MSR Track 3	m
Telepen	n

EXAMPLE:
To designate UPC-A, Code 39, Codabar, and MSR Track 1 as the only valid sources of data, enter:
... JC<ENTER>a<ENTER>e<ENTER>j<ENTER>k<ENTER> ...

Set Length

Use this command to indicate a minimum and maximum number of characters allowed for valid data. The first two digits set the minimum length, and the second two digits set the maximum length. (This command is optional.)

SELECTION CODE: JD	
Two Digits for Minimum Length	
Two Digits for Maximum Length	

EXAMPLE:
To set the minimum number of characters at six, and the maximum at twelve, enter:
... JD<ENTER>0<ENTER>6<ENTER>1<ENTER>2<ENTER> ...

Match String

This command looks for a "match" between a data string designated in the data editing formula and a data string in the data scanned by the reader. When this feature is enabled, the only data sent to the host will be data that contains the matched data string. The first two digits indicate the position in the scanned data at which the match is to begin. Up to 60 characters can then be entered to specify the actual string to be matched. If you need to match more than one character string, simply add another match command to the formula. (This command is optional.)

SELECTION CODE: JE
Two Digits for Position at which to Begin Match
Up to 60 Characters for Match String

EXAMPLE:
To begin the match string at position 8 and designate the match string as ABCDE, enter:
... JE<ENTER>0<ENTER>8<ENTER>A<ENTER>B<ENTER>
C<ENTER>D<ENTER>E<ENTER> ...

This means that input data "1234567ABCDE" will match the data string in the Match String formula and will therefore be considered valid.

Note: The first position is 01, not 00.

Create a Data Field

This command allows you to create a data field that begins with the first position in the scanned data and extends a specified number of characters. For instance, if the new data field is to be eight characters long, the undivided field of data will be divided into two fields, the first eight characters long, and the second the remaining data characters.

SELECTION CODE: JF
Two Digits for Position at which First Data Field Ends

EXAMPLE:
In scanned data 15 characters long, to create a first data field of 7 characters and a second data field of 8 characters, enter:
... JF<ENTER>0<ENTER>7<ENTER> ...

This means that input data "1234567ABCDEFG" will divide into two fields: 1234567 and ABCDEFG.

Search for a Data String

This command allows you to create a data field by searching the scanned data for a data string that matches a data string specified in the formula. If a match is found, the scanned data will be divided into three fields: the data from the search start point to the character before the searched data string, the data string itself, and the data remaining.

SELECTION CODE: JG
Characters that Constitute the Data String to be Searched for

EXAMPLE:
In scanned data, to search for the data string ABCDE, enter:
... JG<ENTER>A<ENTER>B<ENTER>C<ENTER>
D<ENTER>E<ENTER> ...

This means that scanned data “1234567ABCDEFG” will be divided into three fields: 1234567 and ABCDE and FG.

Add a Data Field

This command allows you to add a character string to scanned data before transmitting it to the host computer. The character string you add will be transmitted as a separate data field. (This command is optional.)

SELECTION CODE: JJ
Characters that Constitute the Data String to be Added

EXAMPLE:
In scanned data, to add one data field “abcd” to the scanned data 1234, enter:
... JJ<ENTER>a<ENTER>b<ENTER>c<ENTER>d<ENTER> ...

This means that additional field “abcd” can be added to output data string abcd and 1234.

Note: The added string can be comprised of any characters from the full ASCII table. However, the communication program used may not be able to accept the non-printable characters.

Note: For CR, use CTRL-N (ASCII code 14h).

Set the Sequence in which Data Fields are Sent

This command specifies the order in which data fields are transmitted to the host. Each separate field is assigned an upper case alpha letter in the order in which it is created. So the first data field created is A, the second is B, and so on.

SELECTION CODE: JK
Characters Assigned to Data Fields in the Transmission Order Desired

EXAMPLE:
To transmit fields A, B, and C to the host so that the second and third data fields are reversed, enter:
... JK<ENTER>A<ENTER>C<ENTER>B<ENTER> ...

This means that data fields A, B, and C will be transmitted as A, C, and B.

Time Delay

In addition to specifying the order in which data fields are transmitted to the host, you can add a time delay between each field. The amount of time delay is two digits multiplied by 100 milliseconds. So if the time delay specified is "02" the time delay will be 200 milliseconds.

SELECTION CODE: JM
Two Digits for Time Delay

Delete One Formula

This command deletes a single formula stored in the reader's memory. To do this, you need to know the place the formula is stored in memory. In other words, if the formula to be deleted is the third formula stored in the reader's memory, then you'll need to enter the number 3.

SELECTION CODE: JS
One Digit to Indicate which Formula to Delete

Reset Data Editing Group

This command will clear the reader's memory of all formulas, disable the Data Editing feature, and send the original data with the preamble, postamble, and terminator specified.

SELECTION CODE: JX

EXAMPLE:
To delete all data editing formulas from the reader's memory, enter:
/E/D/FJ<ENTER>JX<ENTER>JZ<ENTER>

Review Configurations

This command allows you to view all the data editing formulas stored in the reader's memory, as well as all other data editing settings.

SELECTION CODE: JY

EXAMPLE:
To view all data editing formulas in the reader's memory, enter:
... JY<ENTER> ...

Exit Data Editing Mode

Remember to enter JZ<ENTER> to save your settings and exit the Data Editing mode.

SELECTION CODE: JZ

Omni Data Flow

The Omni reader processes scanned data in the following order:
1. Raw data is scanned and decoded and placed in an ASCII character format in the reader's memory.
2. The bar code symbology and magnetic stripe track tests (maximum/minimum length, check digit, send sentinels, etc.) are applied to the data.
3. Following the successful completion of these tests, the data is compared to each data editing formula stored in memory.
4. If the data matches one of the data editing formulas, it is processed and sent to the output port. If the data does not match any of the formulas and the UNMATCHED INPUT function is set to DO NOT SEND, the data will be discarded.

5. If UNMATCHED INPUT is set to SEND, the unmatched data is passed on to the message processing section of the reader, where any previously-defined postamble, preamble, and terminator characters are added before the data is sent to the output port.

Examples

EXAMPLE ONE

Symbology Code 128
Desired Output: Divide the input data record into two fields with one consisting of the first six digits and the second containing the remaining data. The output should have a <CARRIAGE RETURN> or <CR> inserted after each field.

Formula	ID h C 06 A <ENTER> SEND ACBC
Field List	Field A 764400 Field B 57320712 Field C <CR>

	Keystroke Sequence
Enter Data Editing Setup	/E/D/FJ<ENTER>
Enable Data Editing	JA<ENTER>1<ENTER>
Enter Code ID as h (for Code 128)	JC<ENTER>h<ENTER>
Define first six characters as Field A, and remaining data as Field B	JF<ENTER>0<ENTER> 6<ENTER>
Enter Add Field C as the <ENTER> key	JJ<ENTER>^N<ENTER>*
Define Field Sending Sequence of ACBC	JK<ENTER>A<ENTER> C< ENTER>B<ENTER> C<ENTER>
Save Exit Setup	JZ<ENTER>
Output Data	764400<CR> 57320712<CR>

** ^N: Do a CTRL-N by holding down the <CTRL> key while pressing the N key, then releasing both.*

Symbology Code 39

Desired Output: The input record must be Code 39 and be exactly seven characters in length with the seventh character being an "X". It is divided into three fields; the first three characters, the next three characters, and the last character. The output should reverse the order of the first two fields, delete the last character, and add an <ETX> (ASCII code 03) at the end of each field. In addition, a time delay of 900 milliseconds should be added between the fields (after the F1) and another delay of 2000 milliseconds added to the end of the record.

Formula	ID e LEN 07 07 M 07 X C 03 C 03 A \ 03 SEND BD DLY 09 AD DLY 20
Field List	Field A AST Field B 798 Field C X Field D <ETX>

	Keystroke Sequence
Enter Data Editing Setup	/E/D/FJ<ENTER>
Enter Data Editing and Enable	JA<ENTER>1<ENTER>
Enter Code ID and e (for Code 39)	JC<ENTER>e<ENTER>
Enter Length and 0707	JD<ENTER>0<ENTER>7<ENTER>0 < ENTER >7<ENTER>
Enter Match and 07X	JE<ENTER>0<ENTER>7<ENTER> X<ENTER>
Enter Count and 03	JF<ENTER>0<ENTER>3<ENTER>
Enter Count and 03	JF<ENTER>0<ENTER>3<ENTER>
Enter Add Field & <ETX> character	JJ<ENTER>^C<ENTER> *
Enter Field Sequence and BD	JK<ENTER>B<ENTER>D<ENTER>
Enter Add Delay and 09	JM<ENTER>0<ENTER> 9<ENTER>
Enter Field Sequence and AD	JK<ENTER>A<ENTER>D<ENTER>
Enter Add Delay and 20	JM<ENTER>2<ENTER> 0<ENTER>
Enter Exit Setup	JZ<ENTER>
Output Data	798<<ETX>>.9s delay AST<<ETX>> 2s delay

** ^C: Do a CTRL-C by holding down the <CTRL> key while pressing the C key, then releasing both.*

%B0123774965^FISH/MARY^96124379F?

MSR Track 1 data

Desired Output: Divide it up into seven fields so that the 1st field is the first two characters, 2nd field is all characters from the first field to the first "^" character, 3rd field is the first "^" character, 4th field is the data between "^" marks, 5th field is the next "^" character, 6th field is the next four characters, 7th field is the remaining characters. In addition, a <CR> is inserted between fields in the data output record. Only the 4th, 2nd, and 6th fields are outputted.

Formula	ID k C 02 S ^ S ^ C04 A \ OD SEND DHBHFH	
Field List	Field A	%B
	Field B	0123774965
	Field C	^
	Field D	FISH/MARY
	Field E	^
	Field F	9612
	Field G	4379F?
	Field H	<CR>

	Keystroke Sequence
Enter Data Editing Setup	/E/D/FJ<ENTER>
Enter Data Editing and Enable	JA<ENTER>1<ENTER>
Enter Code ID and k (for MSR Track 1)	JC<ENTER>k<ENTER>
Enter Count and 02	JF<ENTER>0<ENTER> 2<ENTER>
Enter Search String and the ^ character	JG<ENTER>^<ENTER>
Enter Search String and the ^ character	JG<ENTER>^<ENTER>
Enter Count and 04	JF<ENTER>0<ENTER> 4<ENTER>
Enter Add Field & the <ENTER> character	JJ<ENTER>^N<ENTER>*
Enter Field Sequence and DHBHFH	JK<ENTER>D<ENTER> H<ENTER>B<ENTER> H<ENTER>F<ENTER> H<ENTER>
Enter Exit Setup	JZ<ENTER>
Output Data	FISH/MARY<CR> 0123774965<CR> 9612<CR>

** ^N: Do a CTRL-N by holding down the <CTRL> key while pressing the N key, then releasing both.*

Section 5
OPERATION

Operating Procedure

The Omni reader is easy to operate. Just follow these simple steps:

1. Make sure the reader is properly connected (see sections 2 and 6) and is receiving sufficient power. (See Section 6, Troubleshooting, if there is a cabling or power problem.)

2. To read a card, slide the card, in either direction, through the reader slot, with the bar code facing the optical head (LED side) or the magnetic stripe facing the magnetic head (opposite side).

3. Once the entire bar code or magnetic stripe has been read, the LED indicator will light up as green to signal a "good read." If a good read is not obtained, the LED indicator will light up as red.

4. A beep will also sound to indicate a good read on the bar code or each magnetic track, as appropriate. If all three tracks have been read successfully, the reader will beep three times.

5. The decoded data will be transmitted to the host application.

Note: Output data can be verified in Hyper Terminal (or another serial communication program).

Section 6
TROUBLESHOOTING

The Omni reader is easy to install and use. Most problems encountered can be attributed to:

· Incorrect Interface Cabling
· Incorrect Configuration Setup
· Bad Magnetic Stripe Quality
· Poor Bar Code Quality

General Procedures

The troubleshooting process can be simplified by following these simple diagnostic procedures.

1. The unit should emit two beeps when power is first applied and the LED should turn green. If this does not happen, the unit is not receiving power.

2. Once it has been confirmed that the unit is correctly powered, try swiping a credit card. If the decode is successful, the LED will turn amber and the data will be sent out, accompanied by a beep. The LED will turn green after the data has been transferred. If the decode fails, the LED will turn red for about 2 seconds to indicate a “bad read” with no beep.

3. Once the unit has indicated a “good read,” then proceed to check the interface cabling connections.

Serial Interface Problems

Serial interface problems fall into two primary categories: Incorrect cabling and incorrect port setup.

Do you have the right cables?

The serial interface has a number of “standard” cables with male female and 25 or 9-pin connectors. The correct pin-outs for the reader are listed in Appendix E. Make sure that your cables match these pin-outs and the pin-outs for your computer or terminal.

Are the communications parameters correct?

The communication parameters (baud rate, data bits, start/stop bits, and parity) for the reader must match those of the computer or terminal.

Is the data stream overrunning the computer/terminal port?

The reader can continuously transmit and receive data. However, it is possible that it is exceeding the rate at which the computer/terminal can receive it. Lower the baud rate of the system and reader, or add interblock delays in the data stream to give the host system time to process each message as it is received.

Have you connected the reader to the correct port?

You may have connected the reader to Com 1 and set the parameters for Com 2 or another serial port (or vice-versa).

Have you installed the drivers for USB/RS-232 correctly?

You can check to see if the correct virtual com port has been established for the reader in Windows Device Manager.

Scanning Configurations

One common problem is incorrect configuration setup. You may be trying to read a bar code with the check digit enabled, but the bar code was printed without it. The default settings for the reader are the most frequently-used parameters. If these work, use them. That way, when someone inadvertently changes the settings, they can be reset by entering the return to default codes. If you must use different settings, it is advisable to make a master sheet with the desired configuration keystrokes in the proper order. The operator can then enter the sequential order to return to the original configuration.

Is the proper bar code symbology enabled?

Each symbology is individually enabled or disabled. It is sometimes desirable to enable only those that will be used, thereby eliminating any errors due to the operator scanning the wrong bar code symbol.

Does the selected symbology format options match the symbol?

The scanned data from each bar code symbology can be restricted to eliminate the scanning of unwanted symbols. The restrictions are individually set for each symbology.

Is the reader able to read bar codes?

The Omni is available in magnetic stripe-only and bar code-only versions, as well as in a combo version that read both bar codes and magnetic stripes. Please check the model number with your supplier to make sure the Omni is configured to read the media you want it to read.

Appendix A
DEFAULT SETTINGS

The Omni reader is shipped from the factory with the following bar code default settings already programmed:

Terminal Selection	
Type	RS-232 (Serial)
General Selection	
Beep Volume	High
Interblock Delay	0 milliseconds
Code ID	Off
Scan Verification	Off
Automatic Verification	01
Bar Code Message Formatting	
Terminator Character	CRLF
Preamble	None
Postamble	None
Magentic Stripe Message Formatting	
Terminator Character	CRLF
Preamble	None
Postamble	None
RS-232 Port Settings	
Baud Rate	9600
Data Bits	8
Parity	None
Handshaking	X-On/X-Off
Stop Bit(s)	1
X-On	DC1 (\11)
X-Off	DC3 (\13)

Industrial Bar Codes

Code 39	Enabled
Full ASCII	On
Check Digit	Off
Send Check Digit	No
Send Start/Stop	No
Minimum Length	1
Maximum Length	60
Interleaved 2 of 5	Enabled
Fixed Length	Off
Check Digit	None
Minimum Length	4
Maximum Length	60
Industrial 2 of 5	Enabled
Fixed Length	Off
Check Digit	None
Minimum Length	1
Maximum Length	60
Code 128	Enabled
Minimum Length	1
Maximum Length	60
Codabar	Enabled
Send Start/Stop	No
Check Digit	None
Minimum Length	2
Maximum Length	60
MSI/Plessy	Enabled
Send Check Digit(s)	No
Check Digits	Modulo 10/Modulo 10
Minimum Length	1
Maximum Length	60

Retail Barcodes

UPC-A, -E	Enabled, Enabled
Send Number System Digit	Yes
Send Check Digit	Yes
Expand UPC-E	No
Read 2, 5 Digit Addendum	No, No
Addendum required	Yes
Add Addendum Separator	Yes
Send UPC-A as EAN-13	No
EAN-13, -8	Enabled, Enabled
Send Induced Country Code Digit	Yes
Send Check Digit	Yes
Read 2, 5 Digit Addendum	No, No
Addendum Required	Yes
Add Addendum Separator	Yes
Code ID	
UPC-A	a
UPC-E	b
EAN-8	c
EAN-13	d
Code 39	e
Interleaved 2 of 5	f
Industrial 2 of 5	g
Code 128	h
MSI/Plessey	i
Codabar	j
MSR Track 1	k
MSR Track 2	l
MSR Track 3	m
Telepen	n
Data Editing	
Edit On/Off	Off
Unmatched Input	Send

Appendix B
MAGNETIC STRIPE FORMAT

The Omni reader is shipped from the factory with the following magnetic stripe default settings already programmed:

Magnetic Track Basic Data Format
Track 1: <SS1><T_1 Data><ES><CR>*
Track 2: <SS2><T_2 Data><ES><CR>*
Track 3: <SS3><T_3 Data><ES><CR>*

where: SS1(start sentinel track 1) = %
SS2(start sentinel track 2) = ;
SS3(start sentinel track 3) = ; for ISO, ! for CDL, % for AAMVA
ES(end sentinel all tracks) = ?
<CR> = Carriage Return

Start or End Sentinel: Characters in encoding format which come before the first data character (start) and after the last data character (end), indicating the beginning and end, respectively, of data.

Track Separator: A designated character which separates data tracks.

Terminator: A designated character which comes at the end of the last track of data, to separate card reads.

LRC: Check character, following end sentinel.

CDL: Old California Drivers License format.

**Note: The <CR> commands shown above for tracks 1 & 2 and 2 & 3 denote the default character for this position, the Track Separator position. The <CR> command shown for track 3 denotes the default character for this position, the Terminator position.*

Appendix C
MAGNETIC STRIPE STANDARD DATA FORMATS

International Standards Organization (ISO) Credit Card Format

Track 1

Field ID Character	Contents	Length
a	Start Sentinel	1
b	Format Code “B”	1
c	Account Number	13 or 16
d	Separator “^”	1
e	Cardholder Name	variable
f	Separator “^”	1
g	Expiration date	4
h	Optional Discretionary data	variable
i	End Sentinel	1
j	Linear Redundancy Check (LRC) Character	1

Track 2

a	Start Sentinel	1
b	Account Number	13 or 16
c	Separator “=”	1
d	Expiration date “YYMM”	4
e	Optional discretionary data	variable
f	End Sentinel	1
g	Linear Redundancy Check (LRC) Character	1

California Driver's License Format

Track 1

Field ID Character	Contents	Length
a	Start Sentinel	1
b	Format Code Type	1
	C = Commercial	
	S = Salesperson	
	D = Driver	
	I = Identification	
	R = Senior Citizen	
c	Name Line 1	29
d	Name Line 2	29
e	Address Line 1	29
f	City	13
g	End Sentinel	1
h	Linear Redundancy Check	
	(LRC) Character	1

Track 2

a	Start Sentinel	1
b	Identification Number	
	ANSI User ID	6
	DL/ID Alpha Translated	2
	7 position DL/ID number	7
	Check Digit	1
c	Field Separator "="	1
d	Expiration Date	4
e	Field Separator "="	1
f	Discretionary Data,	
	8 position birthdate	8
g	End Sentinel	1
h	Linear Redundancy Check	
	(LRC) Character	1

Track 3

a	Start Sentinel	1
b	Class	4
c	Endorsements	4
d	State Code	2
e	Zip Code	9
f	Sex	1
g	Hair	3
h	Eyes	3
i	Height	3
j	Weight	3
k	Restrictions	10
l	Issue Date	8
m	Office	3
n	Employee ID	2
o	LRE ID	2
p	Fee Due Year	4
q	Address Line 2	29
r	Reserved Space	10
s	End Sentinel	1
t	Linear Redundancy Check (LRC) Character	1

AAMVA Driver's License Format

Track 1

Field ID Character	Contents	Length
a	Start Sentinel	1
b	State or Province	2
c	City	13
d	Name	35
e	Address	29
f	End Sentinel	1
g	Linear Redundancy Check (LRC) Character	1

Track 2

a	Start Sentinel	1
b	ANSI User Code	1
c	ANSI User ID	5
d	Jurisdiction ID/DL	14
e	Expiration date	4
f	Birthdate	8
g	Remainder of Jurisdiction ID/DL	5
h	End Sentinel	1
i	Linear Redundancy Check (LRC) Character	1

Track 3

a	Start Sentinel	1
b	Template Version #	1
c	Security Version #	1
d	Postal Code	11
e	Class	2
f	Restrictions	10
g	Endorsements	4
h	Sex	1
i	Height	3
j	Weight	3
k	Hair Color	3
l	Eye Color	3
m	ID #	10
n	Reserved Space	16
o	Error Correction	6
p	Security	5
q	End Sentinel	1
r	Linear Redundancy Check (LRC) Character	1

Appendix D
FULL ASCII TABLE

Cntl Char.	ASCII Char.	Character Code	
		DEC	HEX
@	N_U	0	00
A	S_H	1	01
B	S_X	2	02
C	E_X	3	03
D	E_T	4	04
E	E_Q	5	05
F	A_K	6	06
G	B_L	7	07
H	B_S	8	08
I	H_T	9	09
J	L_F	10	0A
K	V_T	11	0B
L	F_F	12	0C
M	C_R	13	0D
N	S_O	14	0E
O	S_I	15	0F
P	D_L	16	10
Q	D_1	17	11
R	D_2	18	12
S	D_3	19	13
T	D_4	20	14
U	N_K	21	15
V	S_Y	22	16
W	E_B	23	17
X	C_N	24	18
Y	E_M	25	19
Z	S_B	26	1A
[	E_C	27	1B
\	F_S	28	1C
]	G_S	29	1D
^	R_S	30	1E
_	U_S	31	1F

ASCII Char.	Character Code	
	DEC	HEX
space	32	20
!	33	21
“	34	22
#	35	23
$	36	24
%	37	25
&	38	26
‘	39	27
(	40	28
)	41	29
*	42	2A
+	43	2B
,	44	2C
-	45	2D
.	46	2E
/	47	2F
0	48	30
1	49	31
2	50	32
3	51	33
4	52	34
5	53	35
6	54	36
7	55	37
8	56	38
9	57	39
:	58	3A
;	59	3B
<	60	3C
=	61	3D
>	62	3E
?	63	3F

ASCII Char.	Character Code	
	DEC	HEX
@	64	40
A	65	41
B	66	42
C	67	43
D	68	44
E	69	45
F	70	46
G	71	47
H	72	48
I	73	49
J	74	4A
K	75	4B
L	76	4C
M	77	4D
N	78	4E
O	79	4F
P	80	50
Q	81	51
R	82	52
S	83	53
T	84	54
U	85	55
V	86	56
W	87	57
X	88	58
Y	89	59
Z	90	5A
[	91	5B
\	92	5C
]	93	5D
^	94	5E
_	95	5F

ASCII Char.	Character Code	
	DEC	HEX
‘	96	60
a	97	61
b	98	62
c	99	63
d	100	64
e	101	65
f	102	66
g	103	67
h	104	68
i	105	69
j	106	6A
k	107	6B
l	108	6C
m	109	6D
n	110	6E
o	111	6F
p	112	70
q	113	71
r	114	72
s	115	73
t	116	74
u	117	75
v	118	76
w	119	77
x	120	78
y	121	79
z	122	7A
{	123	7B
|	124	7C
}	125	7D
-	126	7E
▒	127	7F

Appendix E
CONNECTOR PIN-OUTS

RS-232 Port, Standard DB-9P

Connector Pin	Direction	Signal (TTL level)
1		No Connection
3	To Omni	Receive Data (RxD)
2	To Host	Transmit Data (TxD)
5		Signal Ground
8	To Host	Request To Send (RTS)
7	To Omni	Clear To Send (CTS)
9		No Connection

Appendix F
USB/RS-232 INTERFACE

The Omni reader is available with a cable that terminates in a Universal Serial Bus (USB) connector. Most computers have multiple USB ports into which a wide variety of peripherals can be installed.

Since USB devices are designed to be "plug and play," the computer will search for a previously installed driver when the Omni is connected. If one cannot be found, the computer will prompt you to make a selection as to where the driver can be found.

The Omni reader is shipped from the factory with default configuration settings already programmed. (See Appendix A for details.) These settings are satisfactory for most applications. To operate and configure the unit as a RS-232 device, it is necessary to download and install the ID TECH USB/RS-232 drivers V3.0. These drivers support advanced USB electronics in the latest ID TECH products utilizing a USB/RS-232 interface. They also work with all previous generations of ID TECH products using the USB/RS-232 interface. They replace the ID TECH USB/RS-232 drivers V2.0

For purposes of these instructions, older ID TECH USB/RS-232 devices are referred to as Type A devices. Newer ID TECH USB/RS-232 devices are referred to as Type B devices. There are two drivers to install for each reader: The serial converter driver and the serial port driver.

Installing the Drivers

The following steps are specifically for Windows XP operating system. For Windows 98, 2000, or Windows me, the procedure is similar.

1. Create a folder named "ID TECH USB Serial Driver V3.0." Download the driver from the ID TECH website (www.id-tech.net) and unzip it to this folder.

2. Unplug the network cable to prevent it from downloading a different driver from the Windows website.

3. Go to START/CONTROL PANEL/ADD OR REMOVE PROGRAMS.

• If you find “ID TECH USB Serial Driver V3.0,” leave it. The correct drivers are already installed. Proceed to the next step.

• If you find either “ID TECH USB Serial Converter Drivers” or “FTDI USB Serial Drivers,” remove them. Then proceed to the next step.

• If you find nothing, proceed to the next step.

4. Plug an ID TECH USB/RS-232 device into one of the USB ports. A “Found new hardware wizard” window should appear on the screen. (If it does not appear, please go to “Checking the Installation and Modifying the COM Port Number.”)

5. Select “Install from a list or specific location” and click NEXT. The host should display another window: “Please choose your search and installation options”

6. Select “Don’t search, I will choose the driver to install” and click NEXT. You will be asked to select the hardware type. Select “Show all devices” and click NEXT.

7. You will be asked to “select the device driver you want to install for this hardware.” Select SHOW ALL DEVICES and HAVE DISK and then click NEXT.

8. The INSTALL FROM DISK window will appear. Click BROWSE.

9. The LOCATE FILE window will appear. Find C:\ID TECH USB Serial Driver V3.0. Select FTDIBUS.INF and click OPEN.

10. Click OK on the next window. The following will appear: “Select the device driver you want to install for this hardware.” You will also notice a warning that the driver is not digitally signed. Click NEXT. A Windows XP warning will appear: “This driver is not digitally signed.” Click CONTINUE ANYWAY.

11. The wizard will install the FTDIBUS.INF driver. When finished, the following message will appear: “The wizard has finished installing the software for ID TECH - USB High Speed Serial Converter.

12. Click FINISH.

13. A “Found new hardware wizard” window should again appear on the screen.

14. As before, select “Install from a list or specific location” and click NEXT. The host should display another window: “Please choose your search and installation options”

15. Select “Don’t search, I will choose the driver to install” and click NEXT. You will be asked to select the hardware type. Select “Show all devices” and click NEXT.

16. You will be asked to “select the device driver you want to install for this hardware.” Select SHOW ALL DEVICES and HAVE DISK and then click NEXT.

17. The INSTALL FROM DISK window will appear. Click BROWSE.

18. The LOCATE FILE window will appear. Find C:\ID TECH USB Serial Driver V3.0. Select FTDIPORT.INF and click OPEN.
19. Click OK on the next window. The following will appear: “Select the device driver you want to install for this hardware.” You will also notice a warning that the driver is not digitally signed. Click NEXT. A Windows XP warning will appear: “This driver is not digitally signed.” Click CONTINUE ANYWAY.

20. The wizard will install the FTDIPORT.INF driver. When finished, the following message will appear: “The wizard has finished installing the software for ID TECH - USB High Speed Serial Port.

21. Click FINISH. Both drivers are now installed, and the USB/RS-232 device should be fully functional.

For Type A ID TECH USB/RS-232 devices, it will be necessary to reinstall the driver for each unit connected to the host. For Type B ID TECH USB/RS-232 devices, it will only be necessary to install the driver once for each PC and USB port.

Checking the Installation and Modifying the COM Port Number

1. Go to START/CONTROL PANEL/SYSTEM/HARDWARE/DEVICE MANAGER/
PORTS (COM & LPT). Find "ID TECH USB Serial Port (COMX)" (where "X" can be any COM port number.) If you cannot find it, please go to "Troubleshooting."

2. Double click on "ID TECH USB Serial Port (COMX)"

3. Select PORT SETTINGS/ADVANCED/COM PORT NUMBER and change it to a valid number (usually COM3 or COM4).

4. Click OK on all open windows to close them.

For Type A ID TECH USB/RS-232 devices, each device will be assigned to a unique virtual com port number. For Type B ID TECH USB/RS-232 devices, each USB port will be assigned a unique virtual com port number.

Telling Whether the Installed Device is Type A or Type B

1. Go to START/CONTROL PANEL/SYSTEM/HARDWARE/DEVICE MANAGER.

2. Under PORTS (COM & LPT), a Type B ID TECH device will have a dash (-) between the words TECH and USB. An Type A ID TECH device will not have a dash between the words TECH and USB.

Type A Device:	"ID TECH USB Serial Port (COMX)"
Type B Device:	"ID TECH-USB Serial Port (COMX)"

Troubleshooting

For most PCs, the installation of this new driver will be trouble-free. Occasionally, however, it may be necessary to update the driver or remove it entirely and re-install it several times in order to make it work.

If the driver did not install properly, try updating it first. If this does not fix the problem, remove the driver entirely.

Updating the Driver

1. With the reader plugged in, go to START/CONTROL PANEL/SYSTEM/ HARDWARE/DEVICE MANAGER/PORTS (COM & LPT) and/or UNIVERSAL SERIAL BUS CONTROLLERS (as appropriate).

2. Locate any items like “Unknown USB Device” or “(ID TECH) USB Serial Converter” or “(ID TECH)USB Serial Port” that are marked with a yellow “!” These need to be updated.

3. Right-click on the item and select PROPERTIES/DRIVER and click UPDATE DRIVER.

4. The HARDWARE UPDATE WIZARD window will open. Select “Install from a list or specific location.” Click NEXT.

5. The host should display another window: “Please choose your search and installation options.” Select “Don’t search, I will choose the driver to install” and click NEXT. You will be asked to select the hardware type. Select “Show all devices” and click NEXT.

7. You will be asked to “select the device driver you want to install for this hardware.” Select HAVE DISK and then click NEXT.

8. The INSTALL FROM DISK window will appear. Click BROWSE.

9. The LOCATE FILE window will appear. Find C:\ID TECH USB Serial Driver V3.0. Select FTDIBUS.INF or FTDIPORT.INF (as appropriate) and click OPEN.

10. Click OK on the next window. You will notice a warning that the driver is not digitally signed. Click NEXT. A Windows XP warning will appear: “This driver is not digitally signed.” Click CONTINUE ANYWAY.

11. The wizard will update the driver. When finished, the message “The wizard has finished installing... “ will appear.

12. Click FINISH.

13. Repeat the above steps if both drivers must be updated.

Removing the Driver

1. With the reader plugged in, go to START/CONTROL PANEL/SYSTEM/ HARDWARE/DEVICE MANAGER/PORTS (COM & LPT) and/or UNIVERSAL SERIAL BUS CONTROLLERS.

2. Locate any items like “Unknown USB Device” or “(ID TECH) USB Serial Converter” or “(ID TECH)USB Serial Port” marked with a yellow “!”

3. Right-click on the item and select the UNINSTALL option to remove the driver.

4. The CONFIRM DEVICE REMOVAL window will open. Click OK.

5. After the driver has been removed, unplug and then plug the reader in again.

6. A “Found new hardware wizard” window should appear on the screen. Install the driver again.

ID TECH
10721 Walker Street
Cypress, California 90630
(714) 761-6368
www.id-tech.net

80028503-004 Rev. A R01/05 #428